

ATTACHMENT 1

**ANALYTICAL DATA PACKAGE FOR SOIL AND WATER SAMPLES
INVESTIGATION DERIVED WASTE DISPOSAL
WEST VIRGINIA ORDNANCE WORKS
MASON COUNTY, WEST VIRGINIA**

Table 4

**Summary of Non-Indigenous Waste Disposal Information (Overpacked)
WVOW Laboratory and Other Wastes – November 1998**

Containers	Contents	Weight	Hauled By	Disposal Date	Disposal Location
9 Overpacks	Laboratory Wastes	3,600 lbs	Ross Trans.	12/04/98 – 12/07/98	Ross Incinerator
3 Overpacks	Diesel / Kerosene	1,200 lbs	Ross Trans.	12/04/98 – 12/07/98	Ross Incinerator
1 Overpack	Anti-Freeze	400 lbs	Ross Trans.	12/04/98 – 12/07/98	Ross Incinerator
1 Overpack	Acetone	400 lbs	Ross Trans.	12/04/98 – 12/07/98	Ross Incinerator

Table 5

**Summary of Wastewater Analytical Results (Sample ID 9310)
Decontamination and Purge Water, November 1998**

Parameter	Units	Detection Limit	Result	Remarks
Volatiles by SW846 8260B				
Bromomethane	ug/L	2.0	0.14 J	
Acetone	ug/L	10	8.4 J	
2-Butanone	ug/L	5.0	1.4 J	
Toluene	ug/L	1.0	0.14 J	
Total Xylenes	ug/L	1.0	0.37 J	
Semivolatiles by SW846 8270C				
Phenol	ug/L	10	86 B	
2-Methylphenol	ug/L	10	10	
Total Metals by SW846 6010B				
Aluminum	mg/L	0.20	2.1	
Calcium	mg/L	5.0	19.9	
Iron	mg/L	0.10	5.2	
Manganese	mg/L	0.015	0.068	
Potassium	mg/L	5.0	6.5	
Sodium	mg/L	5.0	14.2	
Zinc	mg/L	0.020	0.030	

Table 2

**Summary of Roll-Off Bin Contents and Disposal Information
WVOW Soils, PPE, Pallets, Drums, and Refuse – November 1998**

Manifest Number	Contents	Weight	Hauled By	Disposal Date	Disposal Location
15977	Soils	14.51 Tons	GRS	11/24/98	Northwestern Landfill
15982	Soils	15.56 Tons	GRS	11/25/98	Northwestern Landfill
15981	Soils	17.25 Tons	GRS	11/25/98	Northwestern Landfill
15978	PPE/Pallets/Refuse	4.60 Tons	GRS	11/24/98	Northwestern Landfill
15979	PPE/Pallets/Refuse	3.11 Tons	GRS	11/25/98	Northwestern Landfill
None	Crushed Drums	7.8 Tons	GRS	11/25/98	L&L Scrap Metals
None	Crushed Drums	6.0 Tons	GRS	11/25/98	L&L Scrap Metals

Table 3

**Summary of Wastewater Disposal Information (Profile 02122S)
WVOW Purge and Decon Waters – November 1998**

Tanker ID	Manifest Number	Wastewater Quantity	Weight	Hauled By	Disposal Date	Disposal Location
Waste Mgt 122	1959	2,700 gal	11.26 Tons	Waste Mgt	11/25/98	Suburban Landfill
Waste Mgt 827 - 1059	1958	5,000 gal	20.76 Tons	Waste Mgt	11/25/98	Suburban Landfill
Montgomery Tank Lines 9513-7531	1957	2,700 gal	11.20 Tons	Montgomery Tank Lines	11/25/98	Suburban Landfill

Table 1

**Summary of Ignitability Testing Results
Decontamination Water, November 3, 1998**

Sample ID	Time Sampled	Drum ID	Ignitable (Yes/No)	Remarks
		Source Description		
I001	0910	110D	No	Full
		ESI-1		
I002	0915	109D	No	Full
		ESI-1		
I003	0920	92D	No	Full
		OU-10		
I004	1105	91D	No	Full
		OU-10		
I005	1410	37B	No	¾ Full
		OU-5		
I006	1105	38B	N/A	MT (empty)
		OU-5		
I007	1040	2W	No	½ Full
		Various AOCs		
I008	1145	1W	No	½ Full
		Various AOCs		
I009	0930	12ZZ	No	¾ Full
		OU-3		
I010	1000	224A	No	¾ Full
		OU-1/OU-9		
I011	1035	12ZZ	No	<¼ Full
		YWRMW-001A, OU-3		
I012	1015	22E	No	½ Full
		ESI-9 Baker Tank Solids/Water		
I013	1015	38E	No	¾ Full
		ESI-9 Baker Tank		
I014	0900	136-D	No	Full
		ACDGW-002, ESI-2		
I015A	0905	24E, 8E, 19E, 2E, 23E, 20E, 17E	No	Composite
		ESI-9 Baker Tank Decon Water		
I015B	0905	2E, 11E, 12E, 13E, 14E, 15E, 16E, 18E	No	Composite
		ESI-9 Baker Tank Decon Water		

TABLES

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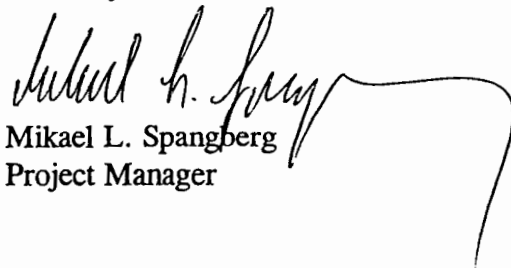
January 8, 1999
IDW Disposal, WVOW

prepared, signed by the USACE, and submitted to Ross Environmental for review and approval on November 24. The waste was approved for disposal at the incinerator on December 2, 1998, and IT remobilized to the site on December 4, 1998, for disposal of the fourteen drums. Manifests were signed by the USACE and the drums were picked up by Ross Transportation Services on December 4, 1998 (Table 4).

A summary of analytical results for the consolidated wastewater is presented on Table 5; note that TCLP and nitroaromatic analyses for the consolidated soils were non-detect. A complete laboratory data package for the composite soil (sample number 9300) and water (sample number 9310) are included as Attachment 1 to this letter. In addition, copies of disposal documents are provided under Attachment 2.

Should you have any questions or require additional information regarding this matter, please do not hesitate to call me at (423) 694-7477.

Sincerely,



Mikael L. Spangberg
Project Manager

Attachments

cc: U.S. Army Engineer District, Huntington
CELRH-ED-AE (Mr. Rick Meadows)

Ms. Kathy McClanahan
CELRN-EP-R-M

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that the ignitability testing required on the decontamination waters could be completed on site. A total of fifteen samples were collected from decontamination water drums and tested at the site for ignitability on November 3, 1998; all waters tested were negative for the characteristic of ignitability (Table 1). Therefore, all wastewater, including decontamination water and purge water, were consolidated into two open top pools, while soils were consolidated into three roll-off bins. Plastic waste, PPE, and pallets were consolidated into two roll-off bins along with general refuse, while emptied drums were crushed and placed in two separate roll-off bins. The process of IDW consolidation was completed on Saturday, November 7, 1998.

After the IDW had been consolidated, IT coordinated with the USACE regarding disposal facilities to receive the waste. Disposal facilities selected by the USACE were: (1) Northwestern Landfill, Inc., Parkersburg, WV for soils, wastewater, and trash; (2) L&L Scrap Metals in Gallipolis, Ohio for crushed drums (recycling); and (3) Ross Incineration Services, Inc., in Grafton, Ohio for other wastes. Solid waste profiles were prepared for the wastes to be disposed of at the Northwestern Landfill, signed by the USACE, and submitted to WVDEP for approval through the landfill. The WVDEP provided approvals for soil disposal on November 23, 1998, but denied the request for water disposal. Therefore, an alternate location for wastewater was selected by the USACE – the Suburban Landfill in Brownsville, Ohio. IT prepared new waste profiles for the wastewater and submitted these for USACE signature and forwarded to the Suburban Landfill for approval. Disposal of the wastewater was approved by the landfill on November 24, 1998.

Soils and trash were hauled to and disposed at the Northwestern Landfill by General Refuse Service (GRS) on November 24 and 25, 1998 (Table 2). GRS also disposed of the crushed drums at L&L Scrap Metal over this same period. Wastewater was hauled by Waste Management and Montgomery Tank Lines to the Suburban Landfill on November 25, 1998 (Table 3). Concurrent with these activities, fourteen remaining drums were overpacked by IT for off-site disposal at the Ross Incinerator. These included nine (9) drums of laboratory wastes, three drums of non-regulated wastes (kerosene and diesel fuel), and one drum containing a 5-gallon container of acetone used in field screening activities. Because the laboratory waste drums contained a soil/acetone/hexane mixture in small soil sample vials (glass) these drums were classified as a hazardous waste as was the drum containing acetone. Waste profiles were

January 8, 1999

Commander
U.S. Army Engineer District, Nashville
ATTN: CELRN-EP-R-M (Ms. Kathy McClanahan)
Estes Kefauver Federal Building
801 Broadway
Nashville, Tennessee 37202-1070

**Summary of Investigation Derived Waste Disposal Activities for the West Virginia
Ordnance Works NPL Site, Mason County, West Virginia;
Contract Number DACA62-94-D-0030**

Dear Ms. McClanahan:

IT Corporation (IT) has completed investigation derived waste (IDW) disposal activities associated with various site investigations at the West Virginia Ordnance Works (WVOW) NPL site in Mason County, West Virginia. This letter has been prepared to present the chronology of events involved in the IDW disposal process as well as to provide copies of disposal documentation received from the various disposal facilities.

Following receipt of the West Virginia DEP (WVDEP) Notice of Violation (NOV) dated September 4, 1998, and their letter dated September 30, 1998, regarding the IDW staged at the West Virginia Ordnance Works (WVOW), IT submitted proposed plans for disposal of the IDW in a letter dated October 7, 1998. The WVDEP responded in a letter dated October 23, 1998, that, with the exception of requiring that decontamination waters be proven to not exhibit the characteristic of ignitability, the proposed disposal actions were approved. Upon receipt of this approval, IT immediately prepared to mobilize to the WVOW site for implementation of the IDW disposal recommendations.

IT personnel mobilized to the site on Monday, November 2, 1998 to begin the process of IDW consolidation for off-site disposal. In consultation with the USACE and WVDEP, it was agreed

October 7, 1998

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**Investigation Derived Waste Management at the West Virginia Ordnance Works NPL Site,
Mason County, West Virginia; Contract Number DACA62-94-D-0030**

Dear Ms. McClanahan:

IT Corporation (IT) has reviewed the West Virginia DEP (WVDEP) Notice of Violation (NOV) dated September 4, 1998, as well as WVDEP's letter dated September 30, 1998, regarding the investigation derived waste (IDW) staged at the West Virginia Ordnance Works (WVOW). This letter is submitted in response to these documents to address the concerns raised by the WVDEP and outline response actions completed or planned. For clarity, this letter has been organized to present (1) the inventory of IDW currently on-site, (2) responses to specific concerns raised by the NOV, (3) responses to specific concerns outlined in the WVDEP's letter of September 30, and (4) proposed actions to address and dispose of IDW at the site.

The 484 drums of IDW stored at the WVOW site have been generated during field investigations of various areas of concern, and can be categorized into three main classifications; soil cuttings, aqueous wastes, and other non-indigenous wastes. An IDW inventory has been maintained by IT over the course of the investigations at WVOW and is summarized in Table 1; the complete inventory is included in Attachment 1.

A total of 174 drums of soil cuttings generated during the drilling and installation of monitoring wells are stored at the site; soil cuttings have always been segregated by well location. Upon completion of each monitoring well borehole, a composite soil sample was obtained from the

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generated cuttings from each well and submitted for TCLP analysis. Results from these analyses are presented in Table 2 and document that the soil cuttings stored at the site are non-hazardous wastes.

The 276 drums of aqueous wastes stored at the site include purge water, development water, and decontamination water. Of these, purge and development waters have been evaluated against analytical results from the sampled monitoring wells and have been determined to be non-hazardous. These results have been presented and may be referenced in previously submitted IDW disposal recommendations contained in the *IDW Management Plan* (IT, 1997) as well as site specific reports prepared at the conclusion of each investigation. Decontamination waters consist of wastewater generated during on-site decontamination of environmental sampling equipment and drill rigs. As such, this waste stream consists primarily of water,alconox soap, and debris removed from the sampling equipment during the cleaning process. Although small amounts of methanol are used in this process, the quantities are such that the generated decontamination waters would not be classified as a hazardous waste. This issue is addressed in more detail in following paragraphs regarding WVDEP's September 30 letter.

Other non-indigenous wastes consist of laboratory wastes, PPE, plastic wastes, etc. Of the 34 drums within this classification, 12 are identified as "lab wastes" and contain waste generated during sample filtration, sample packaging, field screening, and similar activities. This waste stream includes glassware used during sampling, filters used in groundwater and surface water sample preparation, preservatives, and other residue from field screening for nitroaromatic compounds.

In response to the NOV, IT conducted an investigation derived waste (IDW) inventory and general site housekeeping from September 21 through September 24, 1998. Specific action taken at the site included mowing of grass and brush, returning overturned drums to their upright position on pallets, drum inspection, and conducting a confirmation IDW inventory against the previously existing inventory. Drum labels were also ordered so that drums could be relabeled; however, the shipment was misdirected and ultimately returned as undeliverable to the vendor. Therefore, labels will be reordered and IT will return to the site to label all drums if disposal recommendations included herein are not approved by the State of West Virginia.

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The inspection covered the 484 drums currently stored on site and all but 27 drums were labeled/ marked with an alphanumeric drum identification and/or description that correspond to the IDW inventory developed for managing IDW at the site. Since all soil cuttings and aqueous wastes contained in the 27 unlabeled drums were generated during IT's investigations at WVOW, they do correspond to the analytical results from TCLP tests and groundwater samples previously discussed and have been determined to be non-hazardous.

IT identified 21 empty drums during the IDW inspection. Two of these drums had contained non-hazardous soil cuttings previously disposed of on site (78-A and 78-B) and 19 had contained purge water from monitoring wells or decontamination water also determined to be non-hazardous. In addition, ten "leakers" and fifteen possible "leakers" were identified during the inspection. These drums are identified as such on the attached IDW inventory and location map (Attachment 1).

It was also discovered that an empty drum, labeled "Ammonium Perchlorate", had been thrown over the fence surrounding the IDW staging area; additional information regarding this drum may be referenced in the site photographs (Attachment 2) taken during the IDW inspection. This drum will be further evaluated during IDW disposal activities to determine the correct course of action for disposal.

The following items are provided in response to specific issues raised by WVDEP/OWM in their Compliance Evaluation Inspection report dated August 19, 1998.

- Comment 1. "We asked Mr. Thompson and Mr. Albert if they had any records of analysis or hazardous waste shipping manifests generated as part of this project. They advised that they did not think that these records were on site, but they were probably at their offices in Huntington. They further advised that had been one shipment of approximately 900 drums removed from this fenced area last year."

Response. On-site disposal of approximately 900 drums of IDW generated at the site was conducted in 1996 in accordance with disposal plans previously approved by WVDEP (1996). Since these IDW were non-hazardous and disposed of on-site, manifests were not prepared nor required. One drum of soil cuttings generated at ESI-3 was disposed of off-site

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as a hazardous waste by the Huntington District as directed by WVDEP; manifests for this can be obtained from CELRH.

- Comment 2. "...Many of the drums were bulging on the tops and bottoms from freezing, and several of them had fallen over because of this and the contents had leaked out onto the ground. ...During this walk we found at least 6 drums that had fallen over and most or all of the contents had leaked out onto the ground."

Response. IDW drums stored at the site were not necessarily filled to capacity since IDW was segregated by point of origin and the quantity of contents is not an indication of whether the contents may have leaked. However, it is acknowledged that several drums of aqueous IDW have or may have leaked; these drums, identified in Attachment 1, consist of purge, development, and decontamination waters not considered hazardous.

- Comment 3. "Of these waste streams, the ones that were of most concern and would appear to be RCRA violations were as follows: One drum labeled "Lab Waste - Sample Prep 10-30-94" this drum was empty and had apparently leaked out due to rust holes. One drum labeled "Sample Waste Bottles - Lab Waste Including Preservatives 11-15-93". Two drums labeled "Waste Glass TNT Screenings 11-13-94".

Response. The drum labeled "Lab Waste - Sample Prep 10-30-94" is drum number 62-B and is located at position 2 of row number 49 at the site. This drum contains solids in the form of used filters and similar items generated during sample filtration and preparation efforts in the fall of 1994 and is not believed to be a "leaker". Other "lab waste" drums are identified in Attachment 1.

- Comment 4. "There were also seven yellow overpack drums with no labeling or any type of indication of what was in them. (We were told later by Mr. Albert and Mr. Thompson that they thought that last year when they disposed of part of the drums that were stored here, there were seven "leakers" placed in these overpacks.)"

Response. The seven overpack drums stored on-site contain soil cuttings from monitoring well ACDGW-001 installed during the ESI-2 investigation. These drums were placed in the overpacks based on TCLP results indicating that they were potentially hazardous; however, further evaluation indicated that the TCLP results used in this initial determination were from spiked samples. Actual non-spiked TCLP sample results for this well show the soils to be non-hazardous.

- Comment 5. "We also checked the inside of the building and found hundreds of sample jars (4 ounce, 8 ounce, and 16 ounce)."

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Response. Soil samples stored within the Quonset Hut are archived geotechnical and/or chemical samples retained on site for possible reference and are not considered to be wastes. These sample containers are labeled as to their point of origin for proper disposal.

IT has also reviewed the WVDEP letter dated September 30, 1998, regarding their review of the *IDW Management Plan* for WVOW and IT's August 25, 1998 letter outlining recommendations for disposal of the IDW stored on-site. In response to the WVDEP letter, IT will take immediate action to proceed with the off-site disposal option for all IDW stored on-site. Specific responses to selected issues raised in the September 30 letter are as follows (detailed responses are presented in Attachment 1):

- As stated above, all soils currently stored on-site were generated from monitoring wells installed at various locations. In each case, composite soil samples were collected from the cuttings from each well and submitted for TCLP testing. Results of the TCLP testing indicate that none of the soil cuttings are hazardous; note that the one drum of potentially hazardous cuttings has already been removed from the site by the Huntington District.
- All monitoring well purge water, development water, drilling water, and decon waters will be consolidated, sampled, and disposed of off-site. Although methanol, an F003 listed waste for ignitability, is used in the decon process at WVOW it is used in very small quantities in combination with much larger quantities of water. Thus, the resulting waste stream from the decon process is predominantly water, does not exhibit the characteristic of ignitability, and is not a hazardous waste (40 CFR 261.3 (a) (2) (iii)).

With the exception of 98 drums of IDW generated in 1997, on-site disposal recommendations have been previously submitted to the WVDEP for approval. Six of these drums contain soil cuttings generated during monitoring well installation under the Supplementary LTMP and Data Gaps Investigations, while 92 drums contain purge waters from LTMP sampling in December 1997; these purge waters were segregated for disposal using the OU-4 groundwater treatment system at the direction of WVDEP. TCLP results from the three new wells (PWSGW-001, -002, and -003) indicate that VOCs, SVOCs, and metals were not detected under the TCLP analyses. These findings correspond with TCLP results from other well locations in that they are non-hazardous. Similarly, groundwater analytical results from the wells sampled during the long term monitoring sampling events conducted in December 1997 confirm that the waters stored in the drums are non-hazardous.

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IT will mobilize a crew of field labor to consolidate all IDW by category as soon as possible with a target completion by the end of October 1998. Specifically, soils, water, PPE, and miscellaneous wastes will be segregated and consolidated by type. Soil cuttings will be removed from the drums in which they have been stored and placed in large roll-off bins for later off-site disposal. A composite sample will be collected from the soils that will supplement the TCLP data previously obtained for each well. Aqueous wastes will be consolidated into an open-top, lined 12,000-gallon pool and a sample collected for analysis to supplement analytical data previously collected from sampling of each well; analytical results for monitoring wells showing these waters to be non-RCRA hazardous may be referenced in previously submitted reports and IDW disposal recommendations. Note that the use of the "pool" is proposed to eliminate the generation of additional wastes that would result from decontamination of other closed tanks; i.e., Baker Tanks. Plastic and PPE wastes will be removed from the drums, double bagged, and disposed of in a sanitary waste landfill. Other wastes will be consolidated by type and repackaged as necessary for disposal. Empty drums will be crushed and placed in separate roll-off bins for off-site recycling.

One composite soil sample from the consolidated soil cuttings will be submitted to Quanterra Environmental Services, Inc., in Knoxville, Tennessee, for analysis for parameters required by the disposal facility. Similarly, the sample collected from the consolidated aqueous wastes will be analyzed for parameters required by the selected disposal facility.

It is estimated that the reconsolidation of wastes can be completed within a one- to two-week period. Upon receipt of analytical results, IT will remobilize to the site to complete off-site disposal; it is anticipated that this will occur in mid- to late-November 1998. Roll off-bins containing soil cuttings will be transported off-site to a subtitle D landfill for disposal. Water will be pumped out of the 12,000-gallon pool into tanker trucks for disposal at a suitable POTW or TSD facility; the pool itself will be disposed of with the drums being recycled. Non-indigenous wastes will be disposed of via recycling or other appropriate disposal facilities. In each case, appropriate shipping documentation will be prepared for USACE signature indicating contents and disposal information as required by law. Note that possible disposal facilities will

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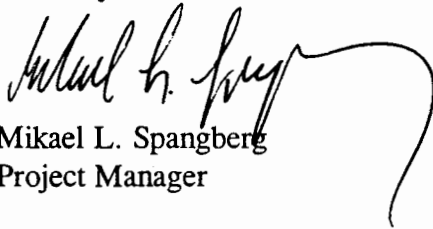
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be identified by IT; however, selection of the facility or facilities to receive the IDW will be the responsibility of the USACE.

Should you have any questions or require additional information regarding this matter, please do not hesitate to call me at (423) 694-7477.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mikael L. Spangberg', with a long, sweeping horizontal line extending to the right.

Mikael L. Spangberg
Project Manager